



“A STUDY TO EVALUATE THE EFFECTIVENESS OF STRUCTURED TEACHING PROGRAMME (STP) REGARDING NEEDLE STICK INJURY AMONG B. Sc NURSING STUDENTS OF APOLLO COLLEGE OF NURSING, GUWAHATI, ASSAM.”

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ABSTRACT

Background: The aim of the study is to evaluate the effectiveness of Structured Teaching Programme (STP) regarding Needle Stick Injuries (NSI) among B.Sc. nursing students. Evaluation was done by pre-experimental one group pre-test post-test group design. Non-probability convenient sampling technique was used to evaluate the effectiveness of 70 samples in Apollo College of Nursing, Guwahati, Assam. The tool consists of Self-structured questionnaires to evaluate the demographic data and the knowledge regarding Needle Stick Injury (NSI). After conducting the Structured Teaching Programme (STP), the mean post-test knowledge score is 14.42 which is higher than the mean pre-test knowledge score (12.57) with a mean difference of 1.85. The Standard Deviation in pre-test is 1 and in post-test are 2 respectively. The obtained “t” value is 3.76 and the table value is 1.99 which shows significance at $p < 0.05$ level. This reveals that Structured Teaching Programme was effective in increasing the knowledge regarding Needle Stick Injury among the B.Sc. nursing students. The study also revealed that there was no significant association in pre-test knowledge score regarding needle stick injury with demographic variables at $p < 0.05$ level of significance. This was a pre-experimental study with one group pre-test post-test group design to evaluate the effectiveness of Structured Teaching Programme (STP) regarding Needle Stick Injuries (NSI) among B.Sc. nursing students.

KEYWORDS: Effectiveness, Structured Teaching Programme (STP), Needle Stick Injuries (NSI), B.Sc. Nursing Students.

1. INTRODUCTION

A needle stick injury is penetrating stab wound from a needle (or other sharp object) that may result in exposure to blood or other body fluids. The main concern is exposure to infectious disease agents present in the blood or other body fluids of another person. Studies have shown that HIV and Hepatitis B are among the important diseases transmitted by needle stick injuries. Needle stick injuries are unsafe event among HCWs in their working environment, while conducting procedures like withdrawing blood, administering as intramuscular or intravenous injection or during needle recapping. Awareness of needle stick injuries started to develop soon after the identification of HIV in the early 1980s. However, today the major concern after the needle stick injury is not HIV but Hepatitis B or Hepatitis C. While needle stick injuries have the potential to transmit bacteria, protozoa, viruses and prions, the risk of contracting Hepatitis B, Hepatitis C and HIV is highest. WHO estimated that in 2000, 66,000 Hepatitis B, 16,000 Hepatitis C and 1,000 HIV infections were caused by needle stick injuries. The Centers for Disease Control and Prevention (CDC), 2007 estimates that each year 385,000 needle sticks and other sharps related injuries are sustained by hospital based health care personnel. Irrational and unsafe injection practices have been a rise in developing countries. More than 80% of the needle stick injuries can be prevented through the use of safety devices and effective safety programmes. Management of needle stick injury contains washing the site immediately with soap and water, incidence should be reported and exposure should be assisted.

1.1 Statement of The Problem

A study to evaluate effectiveness of Structured Teaching Programme (STP) regarding Needle Stick Injury among B.Sc. nursing students in Apollo College Of Nursing, Guwahati,

Assam.

1.2 Objectives

1. To assess the knowledge regarding Needle Stick Injury among B.Sc. nursing students in Apollo College Of Nursing, Guwahati, Assam.
2. To evaluate the effectiveness of Structured Teaching Programme (STP) regarding needle stick injury among B.Sc. nursing students in Apollo College of Nursing, Guwahati, Assam.
3. To determine the association of pre-test knowledge score regarding Needle Stick Injury with demographic variables among B.Sc. nursing students in Apollo College of Nursing, Guwahati, Assam.

1.3 Hypothesis

All the hypothesis were tested at 0.05 level of significance

H1: There is a significant difference between mean pre-test and mean post-test knowledge score regarding Needle Stick Injuries among B.Sc. nursing students. Mean post-test knowledge score is significantly higher than the mean pre-test knowledge score at 0.05 level of significance.

H2: There is a significant association between pre-test knowledge score regarding Needle Stick Injury with demographic variables (age, religion, gender and batch) among B.Sc. nursing students.

1.4 Methodology

Research Approach: Quantitative research approach

Research Design: Pre-experimental one group pre-test post-test group design

Setting of The Study: Apollo College of Nursing, Guwahati,

Assam.

Variables:

Independent variable: Structured Teaching Programme.

Dependent variable: Knowledge regarding Needle Stick Injury among B.Sc. nursing students.

Demographic variable: Age, gender, religion, year of study

POPULATION: B.Sc. nursing students of Apollo College of Nursing, Guwahati, Assam.

Sample: B.Sc. nursing 2nd and 3rd year students of Apollo College of Nursing, Guwahati, Assam.

Sample Size: 70 B.Sc. nursing students.

Sampling Technique: Non-probability convenient sampling technique.

Criteria For Sample Selection

Inclusion Criteria

1. Students of B.Sc. nursing who were willing to participate in the study.
2. Students who were available at the time of data collection.

Exclusion Criteria

1. Students of B.Sc. nursing other than 2nd year and 3rd year.
2. Students who were not available at the time of data collection.

2. METHODS OF DATA COLLECTION AND ANALYSIS

Description Of The Tool:

Self- structured questionnaire was used for the study which includes two sections as follows:

Tool I: The first part consist of demographic variables of the students such as age, gender, religion and year of study.

Tool II: The second part includes 20 numbers of pre-designed knowledge questionnaires regarding needle stick injury.

Data Analysis And Statistical Methods Used

The analysis of the data was done on the basis of objectives and hypothesis of the study.

- Demographic variables was analysed by using frequency and percentage.
- The effectiveness of Structured Teaching Programme [STP] was analysed by using inferential statistics (t-test).
- Association between the pre-test knowledge score regarding Needle Stick Injury with demographic variables was analysed by using inferential statistics (Chi-square analysis).

3. RESULT

Organization of the study findings:

Section 1: Finding related to the demographic variables

1. Frequency and percentage distribution of demographic variables according to age.
2. Frequency and percentage distribution of demographic variables according to religion.
3. Frequency and percentage distribution of demographic variables according to gender.
4. Frequency and percentage distribution of demographic variables according to batch.

Section 2: Finding related to the knowledge score regarding Needle Stick Injury

1. i. Frequency and percentage distribution of pre-

test and post-test knowledge regarding Needle Stick Injury among B.Sc. nursing students.

2. Mean, Standard Deviation and Paired't' test value for effectiveness of Structured Teaching Programme regarding Needle Stick Injury among B.Sc. nursing students.

Section 3: Association between pre-test knowledge score with demographic variables.

Section – 1

Sl. No.	Demographic variables	Frequency (f)	Percentage (%)
1	Age group		
	17-18	0	0%
	18-19	11	16%
	20 & Above	59	84%
2	Religion		
	Hinduism	28	40%
	Islam	10	14.3%
	Christianity	28	40%
3	Gender		
	Male	3	4.3%
	Female	67	95.7%
4	Batch		
	B.Sc. nursing 2 nd year	37	53%
	B.Sc. nursing 3 rd year	33	47%

Table 1: Frequency And Percentage Distribution Of The Demographic Variables

Table 1: Out of 70 samples, majority of B.Sc. nursing students 59 (84%) were in age group of 20 and above years, 11 (16%) of the B.Sc. nursing students were in age group of 18-19 years and none of the B.Sc. nursing students were in age group of 17-18 years.

In regard to religion, 28 (40%) of the B.Sc. nursing students belongs to Hinduism and Christian, 10 (14.3%) belongs to Islam religion and 4 (5.7%) belongs to other religion.

It elucidates that 67 (96%) were female B.Sc. nursing students and 3 (4%) were male B.Sc. nursing students.

It shows that majority of the B.Sc. nursing students 37 (53%) were from 3rd year B.Sc. nursing and 33 (47%) were from 2nd year B.Sc. nursing students.

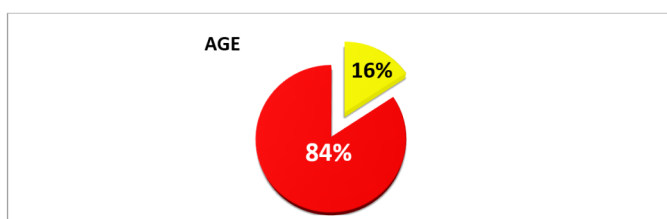


FIGURE I - Frequency and percentage distribution of demographic variables according to age.

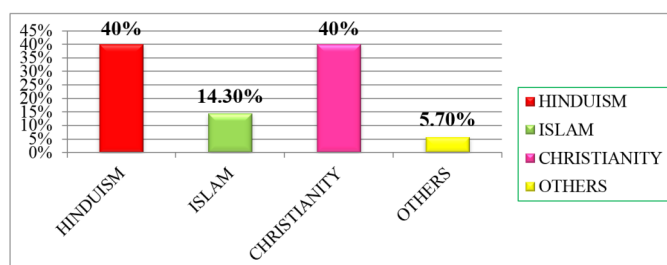


FIGURE II - Frequency and percentage distribution of demographic variables according to religion.

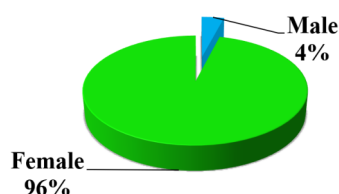
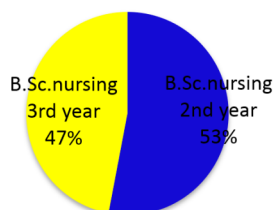


FIGURE IV - Frequency and percentage distribution of demographic variables according to batch.



Section – 2

Level of knowledge	Pre-test		Post-test	
	Frequency(f)	Percentage (%)	Frequency(f)	Percentage (%)
Adequate(≥ 13)	42	60%	58	83%
Inadequate(< 13)	28	40%	12	17%

Table 2.1 Frequency And Percentage Distribution of Pre-test And Post-test Knowledge Regarding Needle Stick Injury Among B.Sc Nursing Students.

The above data shows that during pre-test 42(60%) of B.Sc. nursing students had adequate knowledge and 28(40%) of the B.Sc. nursing students had inadequate knowledge regarding Needle Stick Injury. In post-test majority 58(83%) of B.Sc. nursing students had adequate knowledge and 12(17%) of B.Sc. nursing students had inadequate knowledge regarding Needle Stick Injury which indicates that a gradual increase in knowledge level of B.Sc. nursing students.

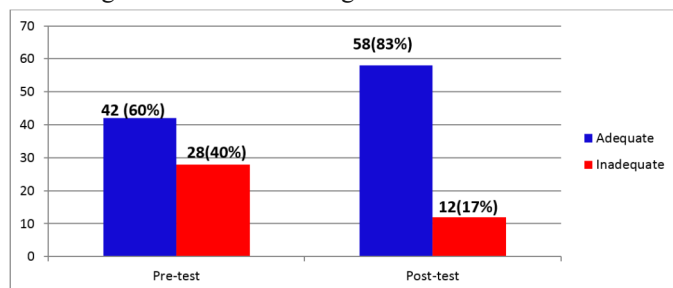


Figure –I -frequency And Percentage Distribution of Pre-test And Post-test Knowledge Regarding Needle Stick Injury Among B.Sc Nursing Students.

Knowledge	Maximum score	Knowledge score				Paired "t" test	df	Table value	P value
		Mean	SD	Mean (%)	SD (%)				
Pre-test	17	12.77	2.21	73%	5.9	3.7568	69	1.99	0.0004
Post-test	19	14.43	2.50	75%	10.5				

Table 2.2: Mean, Standard Deviation & Paired "T" Test Value For Effectiveness of Structured Teaching Programme Regarding Needle Stick Injury Among B.Sc Nursing Students.

Table 2.2 shows that post- test knowledge score (14.42) is higher than the mean pre- test knowledge score (12.57) with a mean difference of (1.85). In the pre- test and post- test, standard deviation is 1&2 respectively. The tabulated value is 3.7568 and table value is 1.99 which shows significant at $P < 0.05$ level. Therefore research hypothesis is accepted. In order to find out the significant difference between mean pre – test and mean post-test the following hypothesis was formulated.

H1- There is a significant difference between mean pre –test and mean post-test knowledge score regarding Needle Stick Injuries among B.Sc. nursing students as evidenced by structured teaching programme (STP). Post-test knowledge score will be significantly higher than the mean pre- test knowledge score at 0.05 level of significant.

The research hypothesis (H1) formulated was thus established since there was a significance difference between the mean knowledge score of pre-test (12.57) and post-test (14.42).

SL no	Demographic variables	Knowledge score		Calculated value (χ^2)	df	Table value	Significance
		Adequate	Inadequate				
1	Age			4.5	2	5.99	NS
	17-18	0	0				
	18-19	3	7				
	20 and above	39	21				
2	Religion			4.9	3	7.82	NS
	Hindu	19	9				
	Islam	3	7				
	Christian	18	10				
	Others	2	2				
3	Gender			0.919	1	3.84	NS
	Male	1	2				
	Female	41	26				
4	Batch			0.83	1	3.84	NS
	B.Sc. Nursing 2 nd year	16	21				
	B.Sc. Nursing 3 rd year	21	12				

N:BNS = not significant

df = Degree of freedom

χ^2 = chi square

The data presented in the table 3 depicts that there was no association between pre- test knowledge score with demographic variables in age, religion, gender, and batch. Hence H2 is rejected

Summary And Major Finding

Summary of The Study

The study was conducted from 17th May 2022 – 25th June 2022 in Apollo College of Nursing, Guwahati, Assam. A sample of 70 B.Sc. nursing students (both 2nd year & 3rd year B.Sc. nursing students) was selected by using non-probability convenient sampling technique. A self-structured knowledge questionnaire regarding Needle Stick Injury was developed to evaluate the effectiveness of Structured Teaching Programme (STP) regarding Needle Stick Injuries (NSI) among B.Sc. nursing students.

SUMMARY OF THE STUDY

1. Findings related to demographic variables

- In the present study, the collected data showed that majority of B.Sc. nursing students 59 (84%) were in age group of 20 and above years. None of the B.Sc. nursing students were in age group of 17-18 years.
- 67 (96%) were female B.Sc. nursing students and 3 (4%) were male B.Sc. nursing students.
- 28(40%) of the B.Sc. nursing students belongs to

religion of Hinduism and Christian, Islam religion 10 (14.3%) and 4 (5.7%) belongs to other religion.

- Majority of the B.Sc. nursing students 37 (53%) were from 3rd year B.Sc. nursing and 33 (47%) were from 2nd year B.Sc. nursing students.

2. Findings related to pre-test knowledge score

- In this study the pre-test knowledge score showed that 42 (60%) of the B.Sc. nursing students had adequate knowledge and 28 (40%) of the B.Sc. nursing students had inadequate knowledge regarding Needle Stick Injury.

3. Findings related to post-test knowledge score

- In post-test knowledge score, majority of the students comprising 58 (83%) had adequate knowledge while rest 12(17%) had inadequate knowledge regarding Needle Stick Injury, which indicates that there is gradual increasing level of knowledge among B.Sc. nursing students.

4. Findings related to association between pre-test knowledge with demographic variables

- There was no significant association between pretest knowledge score with demographic variables like age, religion, gender and batch of B.Sc. nursing students.

Nursing Implication Of The Study

The findings of the study have several implications in the field of nursing practice, nursing education, nursing administration and nursing research.

Nursing Practice

The present study showed that B.Sc. nursing students has inadequate knowledge regarding Needle Stick Injury. Thus the knowledge regarding Needle Stick Injury and its preventive method should be taught to all the nursing students to prevent from the accidental Needle Stick Injury during their clinical practice.

Nursing Education

Nurses should be aware about the Needle Stick Injury, it's preventive measures and the steps for post exposure prophylaxis. Nurse educator can plan a systematic educational programmes targeted at using PPE as well as refreshing training programme in order to promote good practice regarding proper handling and disposable of needles.

Recommendation

- The study can be done on a larger population
- The study can be done in different setting
- The study can be done on staff nurses.

REFERENCES

- Varsha K Pavithran, R. Muraliet.al. Knowledge,attitude and practice of needle stickandsharpinjuriesamongdentalprofessionalsofbanglore. Journal of International society of preventive and community dentistry 2015October; 5(5): 406-412.
- Cristy Vijay, Allen Joe, Naveen Ramesh. Knowledge of needle stick injuries and its prevention among interns and post graduate students working at a tertiary health care centre, Bangalore.International Journal of Community Medicibe and Public Health. 2017 July; 4(7): 2443-2448.
- Kevin C. King, Ronald StronyNeedlestick. [Updated 2022 July 1].In:StatPearls.Treasure Island (FL) StatPearls Publishing ; 2022 January
- Wikipedia. Needlestick Injury Available from: https://en.m.wikipedia.org/Needlestick_injury
- American Nurses Association Sharp Injury Prevention. Available from: <https://www.nursingworld.org/practice-policy/work-environment/health-safety/safe-needles/>
- Centre of Disease Control and Prevention. Injection Safety (cited on March 18, 2016) Available from : <https://www.cdc.gov/injectionsafety/index.html>
- EktaGupta,Dr Vikrant KatiyarStudy on Needle stick injuries among nurses of a tertiary care hospital of Assam. Indian Journal of Applied Research. July 2013, 3(7)
- J Prasuna,Rakesh Sharma et.al.Occurence and Knowledge About Needle Stick Injury in Nursing Students Jayub Med Coll Abbottabad. June 2015; 27(2): 430-433
- Sana Islahi, VineetaMittal,ManodeepSen Prevalence of Needle Stick Injuries amonh health care workers in a Tertiary Caresjonline Centre in North India. Journal of Patient Safety and Infection Control. January 2019; 6(2): 45-50
- Suresh K. Sharma Nursing Research & Statistics .Third Edition. ISBN-9788131248874 Page no-213
- Lakshmi KN A Study to assess the knowledge of Nursing Staff Regarding Needle Stick Injury in Selected Hospital Mysore. Biomedical Journal of Scientific and technical Research. Aug2018; 8(2)
- Ujwala A Chopade, SheetalKadam, PrabhuswamiHiremath A study to assess the effectiveness of Planned Teaching Programme on Knowledge Regarding Needle Stick, Sharp Injuries and their prention among 1st year B.Sc nursing students at KINS,Karad. International Journal of Health Science and Research. August 2015; 5 (8): 401-406
- Xujun Zhang et al.Needlestick and Sharp Injuries among nurses at Teaching Hospital in China.Workpace Health safety. May 2015; 63(5): 219-225
- ShyamkumarShiramStudy of Needle Stick Injuries among Healthcare providers evidence from a Teaching Hospital in India. National Library of Medicine J Family Med Primcare.Febuary 2019; 8(2): 599-603.
- JurimoniGogoi, Sultana Jeshmin Ahmed, HiranyaSaikia, RatnaSarma Study on knowledge, attitude,practice and prevalence of Needle Stick Injuries among health care workers in a tertiary care hospital of Assam. International Journal of Community Medicine and Public Health. 2017 June; 4(6): 2031-2035